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UNITED STATES DEPARTMENT OF AGRICULTURE
Bureau of Agricultural Engineering
Division of Mechanical Equipment

DUST FUNGICIDE FEEDERS FOR USE WITH SEED-TREATING EQUIPMENT

In applying dust fungicides to seed grain to control smuts and certain other seed-borne diseases, a correct quantity of dust must be applied and it must be thoroughly mixed with the grain. With the growing tendency on the part of seedmen, grain dealers, elevator and mill operators, and other central agencies to take over the treating of seed grain, a demand has been created for large-capacity seed-treating equipment which will feed in correct quantities the different kinds of dusts without bridging, arching, packing and clogging.

For treating such grains as wheat, oats and barley with fungicidal dusts, engineers of the U.S. Bureau of Agricultural Engineering, in cooperation with specialists in the U.S. Bureau of Plant Industry, have designed an automatic seed and dust feeding device and also a mechanical dust feeding device for seed-treating machines. These devices are covered by patents dedicated to the public.

The automatic apparatus (fig. 1) is of simple construction and applies dust rapidly, accurately, and efficiently. It consists of a grain feeder with two compartments and a dust-ejecting device. Grain is fed from a hopper attached to the top of the machine. A deflector plate or upper valve attached to a shaft extending through the body of the feeder just above the partition deflects the grain into one compartment or the other. Valves forming the bottoms of the compartments are attached to a shaft extending through the feeder just below the partition. Weight arms attached to and extending radially from the lower shaft and forming an angle of about 135 degrees carry adjustable weights. The upper and lower valve shafts are connected by levers.

As one compartment fills with grain, the bottom valve is pushed down, thereby closing the lower valve on the second compartment and shifting the upper valve to deflect grain into the second compartment while the first one empties. The levers connecting the upper and lower valve shafts are slotted at the top ends so that the movement of the lower valve is almost completed before the top valve is moved. This construction provides quick shifting of the top valve and also positive action as the weights are moving rapidly by the time the end of the slot engages a pin in the lever and trips the upper valve. Such construction also prevents incoming grain from interfering with or retarding the closing of the lower valve since the lower valve will be nearly closed before the upper valve or deflector shifts.

To keep grain from wedging between the edges of the lower valves and the walls of the feeder and clogging the machine, the side edges of the lower valves are cut back approximately 1/2 inch and ledges are inserted for the valves to rest against when in the closed position.

The fungicide feeder or ejector used with the grain feeder is of the offset type and is attached to the side of the grain feeder in such manner as